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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/641,432	08/16/2000	Richard J. Blount	-47586-P037US-09907157	4601

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DALLAS OFFICE OF FULBRIGHT & JAWORSKI L.L.P.
2200 ROSS AVENUE
SUITE 2800
DALLAS, TX 75201-2784

EXAMINER

NGUYEN, DUC M

ART UNIT

PAPER NUMBER

2685

DATE MAILED: 06/19/2003

H

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/641,432

Applicant(s)

Blount et al

Examiner

Duc Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-25 and 29-55 is/are allowed.
- 6) ☒ Claim(s) 26-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2 6) ☐ Other:

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DETAILED ACTION

Information Disclosure Statement

1. The references listed in the information disclosure statements submitted on 3/12/01 has been considered by the examiner (see attached PTO-1449).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims **26-28** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Pierret** (US Pat No. **5,046,066**).

Regarding claim **26**, **Pierret** discloses an equalizer for linearizing a non-linear phase-frequency characteristics of a transmission channel by aligning a group of frequencies along a linear approximation (see col. 2, line 55 - col. 3, line 67), comprising

- generating a phase change versus frequency change curve for the path (see **Figs. 4-11**);
- linearizing the generated curve to form a line (see **Figs. 4-11**);

Here, although **Pierret** is silence on the step of deriving the path's delay from the slope of the line, it is noted that the time of delay is the slope of its phase-frequency characteristic (see

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Pierret, col. 1, lines 26-28). Therefore, it would have been obvious to derive path's delay from the slope of the line as claimed. Therefore, the claimed limitations are made obvious by **Pierret** for linearizing a non-linear phase-frequency characteristics of a transmission path so that an approximate time delay can be obtained.

Regarding claim **27**, the claim is rejected for the same reason as set forth in claim **26** above. In addition, it would have been obvious to use the least square method when linearizing a non-linear curve because this would provide an optimal estimation error in statistics, thereby resulting in averaging a plurality of curve values.

Regarding claim **28**, the claim is rejected for the same reason as set forth in claim **26** above. In addition, it would have been obvious to one skill in the art to modify **Pierret** for using a test signal with frequency increment as claimed, in order to generate a phase change versus frequency change curve as shown in Figs. 4-11.

Allowable Subject Matter

4. Claims 1-25, 29-55 are allowed.
5. The following is a statement of reasons for the indication of allowable subject matter:

As to claims 1, 13, 29, 46, the cited prior art of record fail to disclose or make it obvious a method or apparatus for delay equalization of multiple transmission paths which comprises steps as specified in the claims, wherein the linear relationship between phase and frequency over a selected frequency range is utilized for modifying the delays of signal paths.

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Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- **Froese** (US Patent Number 4,363,131), Built-in group delay testing arrangement for an FM radio system.

- **Wach et al** (US Patent Number 5,530,449), Phased array antenna management system and calibration method.

- **Andersson et al** (US Patent Number 6,157,343), Antenna array calibration.

- **Gu et al** (US Patent Number 6,236,839), Method and apparatus for calibrating smart antenna array.

- **Ast et al** (US Patent Number 5,412,414), Self monitoring/calibrating phased array radar and an interchangeable, adjustable transmit/receive sub-assembly.

7. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for formal communications intended for entry)

(for informal or draft communications, please label "PROPOSED" or "DRAFT")

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (703) 306-4531, Monday-Thursday (9:00 AM - 5:00 PM). Or to Edward Urban (Supervisor) whose telephone number is (703) 305-4385.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

Duc M. Nguyen



June 13, 2003